therapy with everolimus versus BSC alone from the Canadian societal perspective. **METHODS:** A Markov model simulated 2 hypothetical patient cohorts (everolimus versus BSC alone) from the time of initial treatment throughout the 6-year time horizon. The cost-effectiveness of everolimus was calculated in terms of cost per life-years gained (LYG) as well as cost per quality-adjusted life year (QALY) gained. Health state transition probabilities were derived directly from the RECORD-1 subgroup analysis; costs and health state utility values were obtained from literature. The analysis was performed from a societal perspective; as such, direct medical costs and indirect costs associated with productivity loss due to morbidity or future income loss attributed to early mortality were included. A sensitivity analysis from the payer's perspective was additionally performed. Outcomes and costs were discounted at a 5% annual rate. **RESULTS:** Treatment with everolimus produced an estimated gain over BSC alone of 0.643 LYG (0.455 QALYs) at an incremental cost of $22,074. The deterministic analysis resulted in incremental cost-effectiveness ratios (ICERs) of $34,326/LYG and $48,507/QALY. The payer's perspective sensitivity analysis resulted in ICERs of $48,670/LYG and $68,777/QALY. According to the probabilistic sensitivity analysis, given a threshold of $100,000/QALY, the probability that everolimus was cost-effective, from a societal perspective, was 100%. **CONCLUSIONS:** Results of this analysis suggest that, from a Canadian societal perspective, everolimus is a cost-effective alternative to BSC alone when treating mRCC patients whose disease fails on one prior VEGF-TKI treatment.

PCN66

A COST AND OUTCOMES ANALYSIS OF BEVACIZUMAB PLUS FOLFIRI VERSUS CETUXIMAB PLUS FOLFIRI FOR THE TREATMENT OF FIRST-LINE METASTATIC COLORRECTAL CANCER PATIENTS FROM THE BRAZILIAN PRIVATE PAYER PERSPECTIVE

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OBJECTIVES: Colorectal cancer (CRC) is the third most frequent worldwide and about 28,110 new cases were expect for Brazil in 2010. Two biologic agents are approved for treatment of mCRC in Brazil: cetuximab, exclusively for K-RAS wild-type patients and bevacizumab, for both K-RAS types. We aimed to compare costs and outcomes of bevacizumab versus cetuximab in first-line treatment of mCRC, both in combination with FOLFIRI from a private payer perspective in Brazil. **METHODS:** In the absence of head-to-head trials comparing Bev+FOLFIRI and Cet+FOLFIRI, an adjusted indirect comparison was conducted using Bucher-method. Hazard ratios (HRs) from 3 studies: BICC-C(part II) comparing Bev+FOLFIRI vs Bev+IFL; AVF2107g comparing Bev+IFL vs IFL; and CRYSTAL comparing Cet+FOLFIR versus FOLFIRI; were utilized. An illness-death Markov model was enhanced. Risks for progression and mortality were derived from Weibull regression model (assuming deaths conditional upon prior progression). Natural mortality rates were applied according to IBGE life table. Only direct costs were considered for patients with 1,78m2 and 70Kg. Ex-factory prices were obtained from official public sources. Time-horizon was two years according to natural history of the disease. Utilities were derived from international sources; discounting was 5% for costs and outcomes, according to local guidelines. A probabilistic sensitivity analysis (PSA) was conducted in order to evaluate the robustness of results. Non-statistically significant HR 95%-CIs were exploited in PSA. **RESULTS:** Results of the analysis suggest Bev+FOLFIRI combination is less costly compared to Cet+FOLFIRI ($Brz216,838.38 vs. $Brz276,770.15) and a trend towards improved effectiveness with Bev+FOLFIRI (OS 20.1 vs. 16.60 months; QALYs 1.1 vs. 0.9) in first-line treatment of mCRC. PSA portends that Bev+FOLFIRI is dominant over Cet+FOLFIRI (93,44% of iterations Bev+FOLFIRI prolonged OS, being less costly). **CONCLUSIONS:** Based on current available data, analysis suggest Bev+FOLFIRI presents lower costs and better efficacy than Cet+FOLFIRI for treatment of first-line mCRC from a private payer perspective in Brazil.

PCN67

ERLOTINIB AS SECOND LINE TREATMENT FOR ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC): ECONOMIC MODELING (EM) RESULTS

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OBJECTIVES: To determine the cost-effectiveness of erlotinib compared with docetaxel every 3 weeks (D3W) or weekly (DW) or pemetrexed in second line treatment for patients with advanced or metastatic NSCLC, from the Brazilian Private Healthcare System perspective. **METHODS:** The analysis is based on a three stage Markov model to estimate costs and consequences of treatments over 2 years. Epidemiological and efficacy data were derived from a systematic literature search. Indirect network meta-analysis assessed the relative efficacy of the compared treatments. The survival curves were modeled by fitting a Weibull distribution. Only direct medical costs were considered: Drug costs, daily hospital admission rates, procedures and laboratory test unit cost were obtain from Brazilian official databases of private healthcare system fees. Costs and benefits were discounted at 5% yearly and reported in 2010 Brazilian currency (BRL). Outcomes were expressed as progression-free survival (PFS; months), overall survival (OS; months) and quality adjusted life years (QALY). Probabilistic sensitivity analysis (PSA) was conducted to assess model robustness. **RESULTS:** Through the systematic literature review we identified a network meta-analysis performed by Hawkins et al comparing BR21, JMEI, TAX 317, ISEL, INTEREST and SIGN trials that formed the body of clinical data for the analysis. The analysis showed higher clinical benefits and lower average costs for erlotinib (9.73 OS; 4.24 PFS; 0.25 QALY; R$40,471) than D3W (8.49 OS; 3.21 PFS; 0.21 QALY; R$47,180) or DW (8.49 OS; 3.21 PFS; 0.21 QALY; R$56,549) or pemetrexed (8.49 OS; 3.31 PFS; 0.21 QALY; R$60,151), showing the dominance of erlotinib related to compared treatments. PSA demonstrated that in 86%, 98% and 97% of the simulations erlotinib was dominant compared to D3W, DW and pemetrexed. **CONCLUSIONS:** This analysis portends that Erlotinib could be considered as a dominant treatment strategy in 2nd line mNSCLC compared to docetaxel or pemetrexed under the Brazilian Private Healthcare System perspective.

PCN68

COST-EFFECTIVENESS AND QUALITY OF LIFE ANALYSIS OF THE MULTICENTER ITAC02-01 STUDY: PROSPECTIVE RANDOMIZED COMPARISON OF REDUCED INTENSITY VERSUS NON-MYELOABLATIVE CONDITIONING REGIMEN FOR MATCHED RELATED ALLOGENEIC STEM CELL TRANSPLANTATION

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OBJECTIVES: The optimal intensity of conditioning prior to allogeneic hematopoietic stem cell transplants (HSCT) remains uncertain. We present the result of the prospective socio-economic evaluation associated with a randomized study comparing two levels of intensity reduction. **METHODS:** We compare reduced intensity conditioning regimen (RIC= Fludarabine, oral myleran and anti-thymocyte-globulin) and non myeloablative conditioning regimen (NMAC= Fludarabine and total body irradiation). Direct medical transplant costs were estimated by micro-costing on the basis of patients' CRF until 18 months after transplant. Costs of treatment of progression were estimated within five years after transplant. Cost-effectiveness analysis was performed using overall survival (OS) and disease free survival (DFS) as endpoint. Health-related quality of life (HRQL) was measured prospectively by the EORTC QLQ-C30 questionnaire administered seven days before transplant and on days +30 +80 +180 and +360. Linear mixed model analysis was performed to test whether there were differences in HRQL outcomes within and between the two groups over time. GVHD occurrence was included in the model. **RESULTS:** A total of 139 patients with hematological malignancies were treated (RIC: N=69; NMAC: N=70). Survival and DFS at one and five years were identical after RIC and NMAC. The mean total cost per patient was not different between groups (83,656€ for RIC vs. 72,592€ for NMAC, NS). This is related to decreased post graft costs for NMAC (-22,815€, p=0.002) being offset by increased costs of disease progression (+11,750€, p=0.008). Using DFS as endpoint, the RIC is cost-effective: incremental cost-effectiveness ratio=978.64 [95%IC=313.23-2447.91]. Using OS no differences were found between the two groups. RIC had a stronger negative impact on patients' HRQL independently of GVHD. **CONCLUSIONS:** The results confirmed the relapse/toxicity arbitrage associated with the choice of the allo-HSCT conditioning regimen. Moreover, the importance of the choice of endpoints and follow-up times in the economic evaluation of cancer treatment is highlighted.

PCN69

COST-EFFECTIVENESS ANALYSIS OF RITUXIMAB MAINTENANCE TREATMENT OF FOLLICULAR LYMPHOMA IN PATIENTS RESPONDING TO FIRST-LINE INMUNOCHEMOTHERAPY INDUCTION

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OBJECTIVES: Maintenance treatment with Rituximab of follicular lymphoma (FL) patients responding to first-line induction therapy with R-CHOP, R-CVP or R-FCM, increases progression-free survival (hazard ratio 0.55; 95% CI 0.44 to 0.68, P <0.0001) compared with observation. We performed a cost-effectiveness analysis of maintenance therapy in first line of the FL with rituximab, compared with the option of "wait and watch" strategy. **METHODS:** We developed a Markov model of the FL, with four health states (progression free survival in first or second line, progression and death). The transition probabilities between states were obtained from clinical trials PRIMA and EORTC 20981. Health state utilities were obtained from literature. The use of health resources, from the perspective of the National Health System was estimated by a panel of Spanish onco-hematologist experts. Unitary costs (€ in 2010) were obtained from Spanish sources. Deterministic and probabilistic analyses were performed. **RESULTS:** In the deterministic base case analysis, for a time horizon of 30 years, the incremental cost per life year gained (LYG) and quality-adjusted life-years (QALYs) gained, was €5663 and €6253 respectively. The sensitivity analyses confirmed the stability of the base case for time horizons of 10 and 20 years and various statistical distributions (Weibull, exponential, log-logistic, log-normal, Gompertz, and gamma) ranging between €4222 and €8766. **CONCLUSIONS:** Compared with observation, rituximab maintenance treatment of the FL that responds to inmunochemotherapy induction in first line, is a cost-effective strategy.

PCN70

COST-EFFECTIVENESS OF CETUXIMAB AND BEVACIZUMAB IN THE FIRST-LINE TREATMENT OF METASTATIC COLORECTAL CANCER (MCRC) FOR PATIENTS WITH KRAS WILD-TYPE TUMOURS IN THE UNITED KINGDOM

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OBJECTIVES: Combinations of chemotherapy and monoclonal antibodies (MAbs) against the vascular endothelial growth factor (bevacizumab) and the epidermal growth factor receptor (cetuximab) have been shown to improve the clinical outcome of patients with mCRC. Little is known about the economic implications of their use. The aim of this analysis was to evaluate the cost, clinical- and cost-

effectiveness of adding the MAbs cetuximab or bevacizumab to chemotherapy in the first-line treatment of mCRC patients with KRAS wild-type tumours, from the UK (UK) NHS perspective. **METHODS:** A semi-Markov model was developed to simulate patient outcomes and costs for first and subsequent lines of treatment including long-term survival after a curative resection of liver metastases. Data for progression-free survival, resection rates and other model parameters were mainly derived from the CRYSTAL and NO16966 phase 3 studies. The long-term benefits of surgery were estimated from a consecutive series of 1439 patients. Resource use included drugs, physician visits, scans, hospitalizations and treatment of adverse events. Extensive sensitivity analyses were undertaken to explore the robustness of the results. **RESULTS:** In the base case, the estimated mean life expectancy for cetuximab- and bevacizumab-containing regimens was 3.22 and 2.31 years (all undiscounted) respectively. The incremental cost-effectiveness ratio (ICER) for FOLFIRI+cetuximab compared with FOLFIRI alone was £30,665 per quality-adjusted life year (QALY) and £17,626 per QALY compared with FOLFOX+bevacizumab. The ICER is mainly driven by the number of patients becoming resectable and the acquisition cost for each antibody. **CONCLUSIONS:** This analysis suggests that cetuximab in combination with FOLFIRI is the most effective treatment regimen compared with FOLFOX+bevacizumab or chemotherapy alone for patients with KRAS wild-type tumours. The incremental cost-effectiveness ratios of cetuximab in combination with chemotherapy compared with chemotherapy alone, and bevacizumab-containing regimens are within the commonly accepted threshold for cost-effectiveness in the UK.

PCN71

VALUE OF PROGRESSION-FREE SURVIVAL (PFS) IN REFRACTORY NON-SMALL CELL LUNG CANCER (NSCLC): AN EXPLORATORY MODELING ANALYSIS

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OBJECTIVES: PFS is an important endpoint in advanced NSCLC as it permits earlier assessment of treatment benefit compared to overall survival (OS) and is not influenced by subsequent treatment lines. Multiple treatment strategies have demonstrated PFS benefits in solid tumor oncology, but the economic and humanistic value of improved PFS remains unclear. **METHODS:** We developed a literature-based, 3-state (progression-free, disease-progression, death) Markov model designed to estimate clinical and economic outcomes associated with 2nd-line treatment from a US-payer perspective. Modeled treatments included a commonly used FDA-approved epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKI) and an equivalent hypothetical intervention with theoretical improvements applied to quantify value of PFS gains. In base-case, we assumed 20% PFS improvement for intervention and no differences in OS and tolerability profiles or costs between comparators. Model parameters were pulled from published sources and included OS, PFS, adverse event rates, health-state utilities, dosing, and costs. Costs (2010 USD) and effects were discounted 3%. **RESULTS:** In base-case, projected total lifetime discounted costs, PFLYs and QALYs were higher for intervention ($30,791; 0.53 PFLY; 0.32 QALY) vs. EGFR-TKI ($26,705; 0.43 PFLY, 0.30 QALY). Scenario analyses identified two major determinants of costs-effectiveness in our model: PFS improvements accompanied by quality of life (QoL) improvements and post-progression treatment cost savings. Applying a range of QoL improvements (10%-30%) resulted in increased lifetime QALYs for intervention (0.35-0.39) such that ICER was <$50,000/QALY with >25% QoL improvements. For QoL improvements <25%, cost-effectiveness can be achieved with post-progression cost savings. **CONCLUSIONS:** An intervention conferring PFS improvements may be cost-effective if modest treatment-related QoL improvements and/or post-progression cost savings are realized. New and emerging treatments for NSCLC therapies that demonstrate improvement in one or both of these measures and/or OS and safety benefits will probably be competitive as payers start to weigh cost-effectiveness measures in coverage decisions.

PCN72

COST - EFFECTIVENESS ANALYSIS OF CERVICAL CANCER VACCINATION STRATEGIES IN SPAIN

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OBJECTIVES: Assess clinical and economic outcomes of vaccination (Va) with human papillomavirus (HPV) 16/18 AS04-adjuvanted vaccine (16/18Vac) added to screening programmes (Scr) in cervical cancer (CC) prevention, from the National Healthcare System perspective. **METHODS:** A lifetime Markov cohort model with yearly cycles was populated using national epidemiological, cost and treatment data to simulate the natural history of HPV and assess the effect of Va+Scr strategies versus Scr alone. Base case considers vaccinating a cohort of 206.788 girls aged 11, 80% of vaccine coverage and screening each 3 years from age 25 to 65. Efficacy of 16/18Vac was 95% against HPV-16/18 and cross-protection against 5 oncogenic non-vaccine types of 68%. Outcomes measured were number of CC cases, CC deaths, quality adjusted life years (QALYs), costs and incremental cost-effectiveness ratio (ICER) between both strategies. The model also tested a broader campaign vaccinating both 11 & 18 years old during 7 years (100,000 individuals per cohort and year) versus vaccination girls aged 11 only. A discount rate of 3% over costs and outcomes was applied. Sensitivity analyses were performed to assess influence of different parameters. **RESULTS:** Base case scenario would avoid 817 CC cases and 188 deaths (undiscounted) versus Scr alone and generate 1,018 additional QALYs, resulting in an ICER of € 29.295/QALY (discounted). Vaccination of the cohorts aged 11 & 18 would avoid 2,448 CC cases and 602 CC deaths (undiscounted) compared with vaccination only of the 11 years cohort, and represents an ICER of 28,931€/QALY (discounted). Sensitivity analysis shows more favourable cost-effectiveness with higher coverage. **CONCLUSIONS:** HPV vaccination with 16/18Vac added to current screening programmes in Spain is a cost-effective strategy. More favourable cost-effectiveness results may be obtained by expanding vaccination to 18 years old women and increasing vaccination coverage. Results are in accordance with other studies published at national level.

PCN73

COST EFFECTIVENESS OF ZOLEDRONIC ACID VS. PAMIDRONATE OR NO THERAPY FOR THE TREATMENT OF BONE METASTASES SECONDARY TO PROSTATE CANCER

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OBJECTIVES: Zoledronic acid (ZOL) is the only approved bisphosphonate for SRE prevention in hormone-refractory prostate cancer (mHRPC). However, in the UK (UK), 19% and 4% of metastatic, mHRPC patients, do not receive bisphosphonates or receive non-approved/unproven bisphosphonates (i.e., pamidronate [PAM]), respectively for the prevention of skeletal-related events (SREs). This analysis sought to estimate, from a UK payer perspective, the cost effectiveness of providing ZOL to those mHRPC patients not receiving ZOL. **METHODS:** This analysis was based on the results of a published randomized phase III clinical trial wherein mHRPC patients received ≤15 months of ZOL or placebo (PBO) (Saad et al, 2002). Since PAM has been shown to be no different than PBO in mHRPC in a pooled analysis of two trials (Small et al 2003) (i.e., 25% of subjects experienced an SRE at 6 months), the PBO cohort data from the ZOL trial was as a surrogate for PAM data in the absence of a direct comparison of ZOL versus PAM (or other bisphosphonates). Costs were estimated using hospital tariffs and published/internet sources. Quality adjusted life years (QALYs) gained were based on a previously published analysis of the Saad et al (2002) data. Survival was assumed to be identical for both groups. **RESULTS:** Compared with the use of PAM/PBO, treatment with ZOL (at list price of £174.14/infusion vs £80/infusion with PAM) resulted in increased QALYs (+0.03566/pt), fewer SREs (-0.8314/pt, i.e., 0.8315 vs 1.6629), and fewer SRE-related costs (-£1,639/pt, i.e., £2,004 vs. £3,643). Total costs were higher with ZOL (+£702/pt). ZOL cost £19,689/QALY. **CONCLUSIONS:** The use of ZOL for the prevention of SREs in UK patients with bone metastases secondary to mHRPC is cost effective relative to providing no or unapproved bisphosphonates.

PCN74

COST-EFFECTIVENESS ANALYSIS OF CHEMOPREVENTION FOR COLORECTAL CANCER BY LOW DOSE ASPIRIN IN SOUTH KOREA

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OBJECTIVES: This study aims to identify whether it is desirable to recommend low-dose aspirin as chemoprevention therapy for colorectal cancer in addition to routine screening through cost-effectiveness review for general population in Korea. **METHODS:** A Markov model was constructed to simulate the disease natural history of colorectal cancer with routine screening and additional chemoprevention by low dose aspirin. The model evaluated hypothetical cohorts of each 100,000 men and women aged from 50 to 70 years old stratified as 5-years interval. The analysis adopted a social perspective and all costs and outcomes were discounted at 5% for 30 years. The result was presented as the incremental cost per QALY gained. Uncertainty was explored with deterministic and probabilistic sensitivity analysis. **RESULTS:** The analysis showed that the use of low dose aspirin in addition to routine screening comparing to the screening alone is likely to result in a incremental cost per QALY of around 3,000,000 KRW/QALY to 8,700,000 KRW/QALY for men over than 50 years old and of around 4,700,000 KRW/QALY to 12,000,000 KRW/QALY for women over than 55 years old. The deterministic sensitivity analysis for uncertain parameters demonstrated that this analysis results were robust. Assuming a willingness-to-pay threshold of 15,000,000 KRW per QALY gained, the probabilistic sensitivity analysis suggested that low dose aspirin chemoprevention is more net benefit than screening alone for both men over than 50 years old and women over than 55 years old. However, there was considerable uncertainty in the current evidence available. **CONCLUSIONS:** Low dose aspirin appears to be cost-effective regardless of the wide distribution of ICER as chemoprevention of colorectal cancer coupled with screening comparing to the screening alone for the men over than 50 years old and women over than 55 years old. Therefore, low dose aspirin can be recommended as chemoprevention therapy in Korean population.

PCN75

EPIDEMIOLOGIC AND ECONOMIC IMPACT OF HPV (6/11/16/18) VACCINATION IN TURKEY

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OBJECTIVES: to assess the epidemiological and economic impact of a quadrivalent human papillomavirus (HPV) types 6/11/16/18 vaccination in Turkey. **METHODS:** a published mathematical model of the transmission dynamics of HPV infection and disease was adapted for Turkey. The model captured direct protective effects of vaccination and indirect effects (herd immunity). Model inputs were used from Turkey when available; otherwise, the default values in the original model were used. The vaccination strategy included HPV vaccination of 12-year-old girls com-